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CPUC MAOP Workshop
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SOUTHWEST GAS CORPORATION

Outline

- Company Overview
- Calculation of MAOP
- Determining Design Pressure
- Role and Use of Pressure Testing
- Questions

Your Safety, Our Priority

- Southwest Gas is dedicated to providing safe and reliable natural gas service
- The safety of our workforce, customers and communities is the top priority of the Company
- The reliability of our pipeline systems is ensured through proper design, safe construction practices, comprehensive integrity management programs, and routine inspection and maintenance

Company Overview

- Founded in 1931 in Barstow, CA
- Corporate Office – Las Vegas, NV
- Operate in three states
  - Arizona
  - California
  - Nevada

California Operations

- Transmission Pipe
  - 15.4 miles
- Distribution Pipe
  - Main - 3,109 miles
  - Services – 174,890
- Service Territory Includes:
  - Lake Tahoe / Truckee
  - Needles
  - Barstow / Victorville / Big Bear

Calculating MAOP

Application of §192.619(c):

- Natural Gas Transmission Pipeline Comprehensive Pressure Testing Implementation Plan (Implementation Plan)
- Distribution Pipelines
- Change in Class Location

Implementation Plan

- Install Remote Controlled Shut-Off Valve
  - Harper Lake Natural Gas Transmission Pipeline
- Replace 7.1 Miles of Pipe
  - Victor Valley Natural Gas Transmission Pipeline

Change in Class Location

- §192.611 (a)(2) Confirmation or Revision of MAOP
- Reduction in MAOP - Hoop Stress no greater than:
  - Class 2 – 60% SMYS
  - Class 3 – 50% SMYS
  - Class 4 – 40% SMYS

Determining Design Pressure

Design Formula – §192.105:

- P= (2 S t / D) x F x E x T
  - Grade of Pipe (S)
  - Wall Thickness (t)
  - Pipe Diameter (D)
  - Design Factor (F)
  - Joint Factor (E)
  - Temperature (T)

Unknown/Known Features

For Unknown Features:

- Pipe Grade (S)
  - Use the minimum value allowed under §192.107(b)(2) – 24,000 psi
- Wall Thickness (t)
  - Use the minimum wall thickness specified in API 5L, ASTM A53, or ASTM A106
- Longitudinal Joint Factor (E)
  - Use the values in §192.113 Includes "unknown seam"

Unknown/Known Features

For Known Features:

- Pipe Diameter (D)
  - Nominal Pipe size required for all pipe
- Design Factor (F)
- Temperature Factor (T)

Role and Use of Pressure Testing

Pressure Tests are Conducted:

- Under §192 Subpart J Test Requirements
- Pressure Test 1.5 X intended MAOP
  - Regardless of Class Location

Questions